



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

December 5, 2012

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 13-0013, Yellow Bluff Dust Study
Air Quality Management

FROM: Mike Wasko
ASB Inorganic Chemistry Section Chief

THRU: Gary Bennett, Chief
Analytical Support Branch

TO: Michael Crowe

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Accreditations:

Classical/Nutrient Analyses (CNA)

Ammonia/TKN
Classical/Nutrients

EPA 350.1 (Air)
EPA 300.0 (Air)

None
None

Total Metals (TMTL)

Total Metals

EPA 6010 (Air)

None



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Sample Disposal Policy

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator, Debbie Colquitt, by e-mail at Colquitt.Debbie@epa.gov, and provide a reason for holding samples beyond 60 days



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

SAMPLES INCLUDED IN THIS REPORT

Project: 13-0013, Yellow Bluff Dust Study

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
MC3	E124405-01	Field Blank	7/31/12 15:00	11/1/12 14:45
MC4	E124405-02	Trip Blank Air	10/18/12 11:07	11/1/12 14:45
MC1	E124405-06	Air	7/31/12 15:02	11/1/12 14:45
MC2	E124405-19	Air	7/31/12 13:00	11/1/12 14:45



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
CR	Negative bias possible due to imprecise matrix matching of sample extract to baseline.
H-4	Holding time expired prior to receipt by laboratory.
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACRONYMS AND ABBREVIATIONS

CAS	Chemical Abstracts Service Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
ISO	The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1691.
MDL	Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
MRL	Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
TIC	Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC3

Lab ID: E124405-01

Station ID:

Matrix: Field Blank

Date Collected: 7/31/12 15:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Container	50	11/07/12 14:20	11/14/12 21:26	EPA 6010
7439-95-4	Magnesium	50	U	ug/Container	50	11/07/12 14:20	11/14/12 21:26	EPA 6010
7440-09-7	Potassium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:26	EPA 6010
7440-23-5	Sodium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:26	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC3

Lab ID: E124405-01

Station ID:

Matrix: Field Blank

Date Collected: 7/31/12 15:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR, H-4	ug/Container	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Container	20	11/20/12 15:11	11/26/12 20:12	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Container	20	11/20/12 15:11	11/26/12 20:12	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC4

Lab ID: E124405-02

Station ID:

Matrix: Trip Blank Air

Date Collected: 10/18/12 11:07

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-70-2	Calcium	50	U	ug/Container	50	11/07/12 14:20	11/14/12 21:31	EPA 6010
7439-95-4	Magnesium	50	U	ug/Container	50	11/07/12 14:20	11/14/12 21:31	EPA 6010
7440-09-7	Potassium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:31	EPA 6010
7440-23-5	Sodium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:31	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC4

Lab ID: E124405-02

Station ID:

Matrix: Trip Blank Air

Date Collected: 10/18/12 11:07

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Container	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Container	20	11/20/12 15:11	11/26/12 20:34	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Container	20	11/20/12 15:11	11/26/12 20:34	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC1

Lab ID: E124405-06

Station ID: YBA

Matrix: Air

Date Collected: 7/31/12 15:02

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	370		ug/Container	50	11/07/12 14:20	11/14/12 21:48	EPA 6010
7439-95-4	Magnesium	78		ug/Container	50	11/07/12 14:20	11/14/12 21:48	EPA 6010
7440-09-7	Potassium	730		ug/Container	200	11/07/12 14:20	11/14/12 21:48	EPA 6010
7440-23-5	Sodium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:48	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC1

Lab ID: E124405-06

Station ID: YBA

Matrix: Air

Date Collected: 7/31/12 15:02

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR, H-4	ug/Container	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	210		ug/Container	20	11/20/12 15:11	11/26/12 21:58	EPA 300.0
14808-79-8	Sulfate as SO4	570		ug/Container	20	11/20/12 15:11	11/26/12 21:58	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC2

Lab ID: E124405-19

Station ID: YBB

Matrix: Air

Date Collected: 7/31/12 13:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	130		ug/Container	50	11/07/12 14:20	11/14/12 21:54	EPA 6010
7439-95-4	Magnesium	50	U	ug/Container	50	11/07/12 14:20	11/14/12 21:54	EPA 6010
7440-09-7	Potassium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:54	EPA 6010
7440-23-5	Sodium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:54	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC2

Lab ID: E124405-19

Station ID: YBB

Matrix: Air

Date Collected: 7/31/12 13:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	99	J, H-4	ug/Container	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	68		ug/Container	20	11/20/12 15:11	11/27/12 4:20	EPA 300.0
14808-79-8	Sulfate as SO4	300		ug/Container	20	11/20/12 15:11	11/27/12 4:20	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 1211026 - M Air Filter Prep

Blank (1211026-BLK1)

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	U	50	ug/Container							U
Magnesium	U	50	"							U
Sodium	U	200	"							U
Potassium	U	200	"							U

LCS (1211026-BS1)

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	4.9724		mg/L	5.0000		99.4	85-115			
Magnesium	5.3422		"	5.0000		107	85-115			
Sodium	10.245		"	10.000		102	85-115			
Potassium	9.8064		"	10.000		98.1	85-115			

Matrix Spike (1211026-MS1)

Source: E124405-02

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	4.9795		mg/L	5.0000	-0.012127	99.8	75-125			
Magnesium	5.3040		"	5.0000	-0.14299	109	75-125			
Sodium	10.148		"	10.000	0.081883	101	75-125			
Potassium	9.7803		"	10.000	0.014353	97.7	75-125			

Matrix Spike Dup (1211026-MSD1)

Source: E124405-02

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	4.9716		mg/L	5.0000	-0.012127	99.7	75-125		20	
Magnesium	5.3285		"	5.0000	-0.14299	109	75-125		20	
Sodium	10.219		"	10.000	0.081883	101	75-125		20	
Potassium	9.7825		"	10.000	0.014353	97.7	75-125		20	

MRL Verification (1211026-PS1)

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	0.25446		mg/L	0.25000		102	70-130			MRL-2
Magnesium	0.26403		"	0.25000		106	70-130			MRL-2
Sodium	1.0442		"	1.0000		104	70-130			MRL-2
Potassium	1.0142		"	1.0000		101	70-130			MRL-2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1211031 - M M/T Bottle-dry ice blk										
Blank (1211031-BLK1)					Prepared: 11/08/12 Analyzed: 11/09/12					
EPA 350.1										
Ammonia as N	U		10 ug/Container							U
Blank (1211031-BLK2)					Prepared: 11/08/12 Analyzed: 11/09/12					
EPA 350.1										
Ammonia as N	U		10 ug/Container							U
LCS (1211031-BS1)					Prepared: 11/08/12 Analyzed: 11/09/12					
EPA 350.1										
Ammonia as N	0.94900	0.050	ug/Container	1.0000		94.9	90-110			
LCS (1211031-BS2)					Prepared: 11/08/12 Analyzed: 11/09/12					
EPA 350.1										
Ammonia as N	0.95100	0.050	ug/Container	1.0000		95.1	90-110			
Matrix Spike (1211031-MS1)					Source: E124405-08		Prepared: 11/08/12 Analyzed: 11/09/12			
EPA 350.1										
Ammonia as N	1.0070		mg/L	1.0000	-0.048000	106	90-110			
Matrix Spike (1211031-MS2)					Source: E124405-16		Prepared: 11/08/12 Analyzed: 11/09/12			
EPA 350.1										
Ammonia as N	0.98100		mg/L	1.0000	-0.073000	105	90-110			
Matrix Spike (1211031-MS3)					Source: E124405-24		Prepared: 11/08/12 Analyzed: 11/09/12			
EPA 350.1										
Ammonia as N	0.99800		mg/L	1.0000	-0.044000	104	90-110			
Matrix Spike Dup (1211031-MSD1)					Source: E124405-08		Prepared: 11/08/12 Analyzed: 11/09/12			
EPA 350.1										
Ammonia as N	1.0050		mg/L	1.0000	-0.048000	105	90-110		10	
Matrix Spike Dup (1211031-MSD2)					Source: E124405-16		Prepared: 11/08/12 Analyzed: 11/09/12			
EPA 350.1										
Ammonia as N	0.97700		mg/L	1.0000	-0.073000	105	90-110		10	
Matrix Spike Dup (1211031-MSD3)					Source: E124405-24		Prepared: 11/08/12 Analyzed: 11/09/12			



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SEDS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 1211031 - M M/T Bottle-dry ice blk

Matrix Spike Dup (1211031-MSD3)

Source: E124405-24

Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N	0.98900		mg/L	1.0000	-0.044000	103	90-110		10	
--------------	---------	--	------	--------	-----------	-----	--------	--	----	--

MRL Verification (1211031-PS1)

Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N	0.053000	0.050	ug/Container	0.050000		106	70-130			MRL-2
--------------	----------	-------	--------------	----------	--	-----	--------	--	--	-------

Batch 1211086 - C M/T Bottle/Dry Ice Blank Prep

Blank (1211086-BLK1)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4	U	5.0	ug/Container							U
Chloride	U	5.0	"							U

Blank (1211086-BLK2)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4	U	5.0	ug/Container							U
Chloride	U	5.0	"							U

Blank (1211086-BLK3)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4	U	5.0	ug/Container							U
Chloride	U	5.0	"							U

Blank (1211086-BLK4)

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4	U	5.0	ug/Container							U
Chloride	U	5.0	"							U

Blank (1211086-BLK5)

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4	U	5.0	ug/Container							U
Chloride	U	5.0	"							U



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 1211086 - C M/T Bottle/Dry Ice Blank Prep

Blank (1211086-BLK6)

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4	U	5.0	ug/Container							U
Chloride	U	5.0	"							U

LCS (1211086-BS1)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4	49.800	5.0	ug/Container	50.000		99.6	90-110			
Chloride	49.750	5.0	"	50.000		99.5	90-110			

Matrix Spike (1211086-MS1)

Source: E124405-10

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4	1.1020		mg/L	1.0000	0.14000	96.2	90-110			
Chloride	0.98700		"	1.0000	0.026000	96.1	90-110			

Matrix Spike (1211086-MS2)

Source: E124405-20

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4	1.1330		mg/L	1.0000	0.14000	99.3	90-110			
Chloride	1.0100		"	1.0000	0.0090000	100	90-110			

Matrix Spike (1211086-MS3)

Source: E124405-28

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4	1.1290		mg/L	1.0000	0.14300	98.6	90-110			
Chloride	1.0140		"	1.0000	0.018000	99.6	90-110			

Matrix Spike Dup (1211086-MSD1)

Source: E124405-10

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4	1.1030		mg/L	1.0000	0.14000	96.3	90-110		10	
Chloride	0.97900		"	1.0000	0.026000	95.3	90-110		10	

Matrix Spike Dup (1211086-MSD2)

Source: E124405-20

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4	1.1240		mg/L	1.0000	0.14000	98.4	90-110		10	
Chloride	0.99800		"	1.0000	0.0090000	98.9	90-110		10	

Matrix Spike Dup (1211086-MSD3)

Source: E124405-28

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4	1.1120		mg/L	1.0000	0.14300	96.9	90-110		10	
----------------	--------	--	------	--------	---------	------	--------	--	----	--



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SEDS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch 1211086 - C M/T Bottle/Dry Ice Blank Prep

Matrix Spike Dup (1211086-MSD3)

Source: E124405-28

Prepared: 11/20/12 Analyzed: 11/27/12

Chloride	0.99900		mg/L	1.0000	0.018000	98.1	90-110		10	
----------	---------	--	------	--------	----------	------	--------	--	----	--

MRL Verification (1211086-PS1)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4	4.8500	5.0	ug/Container	5.0000		97.0	70-130			MRL-2, U
Chloride	4.7500	5.0	"	5.0000		95.0	70-130			MRL-2, U



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Notes and Definitions for QC Samples

U The analyte was not detected at or above the reporting limit.
MRL-2 MRL verification for Non-Potable Water matrix